

## AMENDMENT

**Amendments to the Claims:** Please replace all prior versions and listings of claims with the following listing of claims.

### LISTING OF CLAIMS:

1-30. (Cancelled)

31. (Currently Amended) A method of providing service analysis in service level management ~~of a business process in connection with a computer network, wherein the business process is supported by a service operated on the computer network, wherein the service is supported by at least one network component within the computer network, wherein the service is to be provided at an agreed upon service level, and wherein a measure of performance of the service indicates a current service level of the business process, the method~~ comprising:

providing a service over a network having a plurality of network components that support the service, wherein performance of the service depends upon performances of the plurality of network components that support the service, and wherein the service has a state that represents the performance of the service;

measuring a plurality of component parameter of parameters for the at least one plurality of network component components that support the service, wherein the plurality of component parameter indicating an operational characteristic parameters measure performances of the at least one plurality of network component components that support the service;

determining the state of the service from the plurality of measured component parameters, wherein determining the state of the service includes mapping the plurality of measured component parameters to a service parameter representative of a measure of performance of that represents the state of the service, and wherein the state of the service

~~parameter having a state used to determine conformity of~~ indicates whether the service conforms to the an agreed upon service level identified in a service level agreement; and  
executing one or more data mining algorithms that discover respective influences that each determining an effect of the plurality of measured component parameter parameters have on the state of the service parameter, wherein the respective influences represent relationships between the state of the service and the plurality of network components that support the service.

32-33. (Cancelled)

34. (Currently Amended) The method of claim 31, wherein the service parameter represents one or more of ~~of~~ a response time of a for one or more of the plurality of network resource; components, traffic congestion [of] in a selected portion of the network[;], availability of a for one or more of the plurality of network resource; components, reliability of a for one or more of the plurality of network resource; components, security of a for one or more of the plurality of network resource; components, performance of a for one or more of the plurality of network resource; and components, or a configuration of a for one or more of the plurality of network resource components.

35. (Currently Amended) The method of claim 31, wherein ~~the network component is associated with a~~ plurality of network component monitoring agent agents are configured to measure the plurality of component parameters for the plurality of [a] network management system components that support the service.

36. (Currently Amended) The method of claim 35, ~~wherein each of further comprising determining interfaces between the network component and~~ plurality of monitoring agents are configured to measure a subset of the plurality of component parameters in a respective domain of a plurality of domains of the network component monitoring agent.

37. (Currently Amended) The method of claim 31, further comprising integrating the plurality of domains into a wherein the service level management domain that comprises a plurality of management applications integrated into a hierarchical structure having a for the plurality of layers domains.

38. (Cancelled)

39. (Currently Amended) The [[A]] method of implementing service level management of a business process in connection with a computer network claim 31, wherein the business process is supported by a service, wherein the service is supported by the one or more network entities, and wherein the one or more network entities are addressable by the computer network to manage the service, the method further comprising:

identifying a plurality of component parameters associated with one or more network entities of the computer network;

designating a first one of the plurality of component parameters to be as a service parameter, the service parameter providing an indication of a state of the service supporting the business process;

determining a level of the service from the service parameter, the level of the service indicative of a measure of performance of the service, the measure of performance of the service enabling management of the business process supported by the service; and

analyzing determining, based on the respective influences that each of the plurality of measured component parameters, how the plurality of component parameters affect have on the service parameter to manage the service; and

designating a second one of associated with the network plurality of component parameters to be the service parameter in response to analyzing the respective influences that the plurality of measured component parameters have on the service parameter.

40. (Cancelled)

41. (Currently Amended) The method of claim 39, wherein further comprising managing the second component parameter is designated to be network-based on the state of the service indicated by the service parameter in response to determining that the influence that the second component parameter has on the service parameter is greater than the influence that the first component parameter has on the service parameter.

42-45. (Cancelled)

46. (Currently Amended) A device readable medium holding device executable instructions for executing a method of providing service analysis in service level management ~~of a business process in connection with a computer network, wherein the business process is supported by a service operated on the computer network, wherein the service is supported by at least one network component within the computer network, wherein the service is to be provided at an agreed upon service level, and wherein a measure of performance of the service indicates a current service level of the business process,~~ the method comprising:

providing a service over a network having a plurality of network components that support the service, wherein performance of the service depends upon performances of the plurality of network components that support the service, and wherein the service has a state that represents the performance of the service;

measuring a plurality of component parameter of parameters for the at least one plurality of network component components that support the service, wherein the plurality of component parameter indicating an operational characteristic parameters measure performances of the at least one plurality of network component components that support the service;

determining the state of the service from the plurality of measured component parameters, wherein determining the state of the service includes mapping the plurality of measured component parameters to a service parameter representative of a measure of performance of that represents the state of the service, and wherein the state of the service

~~parameter having a state used to determine conformity of~~ indicates whether the service conforms to the an agreed upon service level identified in a service level agreement; and  
executing one or more data mining algorithms that discover respective influences that each determining an effect of the plurality of measured component parameter parameters have on the state of the service parameter, wherein the respective influences represent relationships between the state of the service and the plurality of network components that support the service.

47-48. (Cancelled)

49. (Currently Amended) The medium of claim 46, wherein the service parameter ~~of the service~~ represents one or more of a response time ~~of a~~ for one or more of the plurality of network resource; components, traffic congestion ~~[[of]]~~ in a selected portion of the network~~[[;]],~~ availability ~~of a~~ for one or more of the plurality of network resource; components, reliability ~~of a~~ for one or more of the plurality of network resource; components, security ~~of a~~ for one or more of the plurality of network resource; components, performance ~~of a~~ for one or more of the plurality of network resource; and components, or a configuration of a for one or more of the plurality of network resource components.

50. (Currently Amended) The medium of claim 46, wherein ~~the network component is associated with a~~ plurality of network component monitoring agent agents are configured to measure the plurality of component parameters for the plurality of ~~[[a]] network management system components that support the service.~~

51. (Currently Amended) The medium of claim 50, wherein the method further comprises comprising determining interfaces between the network component and plurality of monitoring agents are configured to measure a subset of the plurality of component parameters in a respective domain of a plurality of domains of the network component monitoring agent to provide service level management in the network.

52. (Currently Amended) The medium of claim 46, wherein the method further comprises integrating the plurality of domains into a service level management domain that comprises a plurality of executable applications arranged in a hierarchical manner structure for the plurality of domains.

53. (Currently Amended) ~~The A-device-readable medium holding device-executable instructions for executing a method of implementing service level management of a business process in connection with a computer network claim 46, wherein the business process is supported by a service, wherein the service is supported by the one or more network entities, and wherein the one or more network entities are addressable by the computer network to manage the service, the method comprising further comprises:~~

~~identifying a plurality of component parameters associated with one or more network entities of the computer network;~~

~~designating a first one of the plurality of component parameters to be as a service parameter, the service parameter providing an indication of a state of the service supporting the business process;~~

~~determining a level of the service from the service parameter, the level of the service indicative of a measure of performance of the service, the measure of performance of the service enabling management of the business process supported by the service; and~~

~~analyzing determining, based on the respective influences that each of the plurality of measured component parameters, how the plurality of component parameters affect have on the service parameter to manage the service; and~~

~~designating a second one of associated with the network plurality of component parameters to be the service parameter in response to analyzing the respective influences that the plurality of measured component parameters have on the service parameter.~~

54. (Cancelled)

55. **(Currently Amended)** The medium of claim 53, wherein further comprising managing the second component parameter is designated to be network-based on the state of the service indicated by the service parameter in response to determining that the influence that the second component parameter has on the service parameter is greater than the influence that the first component parameter has on the service parameter.

56-58. (Cancelled)

59. **(Currently Amended)** The [[A]] method of providing service-level management of a business process in connection with a computer network claim 31, wherein the business process is supported by a service operated on the computer network, wherein the service is supported by at least one or more data mining algorithms are executed network component within the computer network, wherein the service is to be provided at an agreed-upon service level, and wherein a measure of performance of the service indicates a current service level of the business process, the method comprising:

measuring a component parameter of the at least one network component while the at least one network component is operating to support the service, the component parameter indicating an operational characteristic of the at least one network component;

determining a service parameter representative of a measure of performance of the service, the service parameter having a state used to determine conformity of the service to the agreed-upon service level; and

determining an effect of the measured component parameter on the state of the service parameter while the at least one plurality of network component is components are operating to support the service.

60. **(New)** The method of claim 31, wherein the one or more data mining algorithms include a neural network algorithm that comprises:

identifying a case library that includes a plurality of cases representing episodes of problem solving;

applying a plurality of relevance rules to identify one or more of the cases in the case library that are relevant to discovering the respective influences for the plurality of measured component parameters; and

adapting one or more solutions variables associated with the identified cases using parameterized adaption logic to discover the respective influences that each of the plurality of measured component parameters have on the service parameter.

61. **(New)** The method of claim 31, wherein the one or more data mining algorithms include a decision tree algorithm that comprises producing a decision tree that represents the respective influences that each of the plurality of measured component parameters have on the service parameter.

62. **(New)** The method of claim 61, wherein the decision tree includes one or more of numeric values or binary values that represent the respective influences that each of the plurality of measured component parameters have on the service parameter.

63. **(New)** The method of claim 61, wherein the decision tree includes a root node that represents the service parameter, a plurality of leaf nodes that respectively represent the plurality of component parameters, and a plurality of dependencies between the root node and the plurality of leaf nodes that represent the respective influences that each of the plurality of component parameters have on the service parameter.

64. **(New)** The method of claim 31, wherein the one or more data mining algorithms include a top N algorithm that comprises:

identifying a predetermined number of the plurality of measured component parameters that have a greatest influence on the service parameter; and

producing a list that includes the identified component parameters having the greatest influence on the service parameter, wherein the identified component parameters are listed in



a decreasing order of the respective influences that the identified component parameters have on the service parameter.

65. **(New)** The method of claim 31, wherein the one or more data mining algorithms include a rule induction algorithm that comprises producing one or more rules that represent the respective influences that one or more of the plurality of measured component parameters have on the service parameter.

66. **(New)** The method of claim 65, wherein the one or more rules include one or more of propositional statements or quantified statements that represent the respective influences that the one or more component parameters have on the service parameter.

67. **(New)** The method of claim 36, wherein the one or more data mining algorithms include an inductive logic algorithm that comprises:

incorporating knowledge relating to the plurality of domains of the network and knowledge relating to the plurality of measured component parameters within a rule base;

inferring the respective influences that each of the plurality of measured component parameters have on the service parameter using the knowledge incorporated within the rule base; and

producing one or more of propositional statements or quantified statements that express the respective influences that one or more of the plurality of component parameters have on the service parameter.

68. **(New)** The method of claim 31, wherein the one or more data mining algorithms include a fuzzy logic algorithm that comprises:

translating the plurality of measured component parameters into a plurality of respective fuzzy concepts;

determining grades of membership that the measured component parameters have in the respective fuzzy concepts, wherein the grades of membership quantify transitions between a plurality of states in a state transition graph; and

inferring the respective influences that each of the plurality of measured component parameters have on the service parameter from the grades of membership that the measured component parameters have in the respective fuzzy concepts.

69. **(New)** The medium of claim 46, wherein the one or more data mining algorithms include a neural network algorithm that comprises:

identifying a case library that includes a plurality of cases representing episodes of problem solving;

applying a plurality of relevance rules to identify one or more of the cases in the case library that are relevant to discovering the respective influences for the plurality of measured component parameters; and

adapting one or more solutions variables associated with the identified cases using parameterized adaption logic to discover the respective influences that each of the plurality of measured component parameters have on the service parameter.

70. **(New)** The medium of claim 46, wherein the one or more data mining algorithms include a decision tree algorithm that comprises producing a decision tree that represents the respective influences that each of the plurality of measured component parameters have on the service parameter.

71. **(New)** The medium of claim 70, wherein the decision tree includes one or more of numeric values or binary values that represent the respective influences that each of the plurality of measured component parameters have on the service parameter.

72. **(New)** The medium of claim 70, wherein the decision tree includes a root node that represents the service parameter, a plurality of leaf nodes that respectively represent the plurality of component parameters, and a plurality of dependencies between the root node and the plurality of leaf nodes that represent the respective influences that each of the plurality of component parameters have on the service parameter.

73. **(New)** The medium of claim 46, wherein the one or more data mining algorithms include a top N algorithm that comprises:

identifying a predetermined number of the plurality of measured component parameters that have a greatest influence on the service parameter; and

producing a list that includes the identified component parameters having the greatest influence on the service parameter, wherein the identified component parameters are listed in a decreasing order of the respective influences that the identified component parameters have on the service parameter.

74. **(New)** The medium of claim 46, wherein the one or more data mining algorithms include a rule induction algorithm that comprises producing one or more rules that represent the respective influences that one or more of the plurality of measured component parameters have on the service parameter.

75. **(New)** The medium of claim 74, wherein the one or more rules include one or more of propositional statements or quantified statements that represent the respective influences that the one or more component parameters have on the service parameter.

76. **(New)** The medium of claim 51, wherein the one or more data mining algorithms include an inductive logic algorithm that comprises:

incorporating knowledge relating to the plurality of domains of the network and knowledge relating to the plurality of measured component parameters within a rule base;

inferring the respective influences that each of the plurality of measured component parameters have on the service parameter using the knowledge incorporated within the rule base; and

producing one or more of propositional statements or quantified statements that express the respective influences that one or more of the plurality of component parameters have on the service parameter.

77. **(New)** The medium of claim 46, wherein the one or more data mining algorithms include a fuzzy logic algorithm that comprises:

translating the plurality of measured component parameters into a plurality of respective fuzzy concepts;

determining grades of membership that the measured component parameters have in the respective fuzzy concepts, wherein the grades of membership quantify transitions between a plurality of states in a state transition graph; and

inferring the respective influences that each of the plurality of measured component parameters have on the service parameter from the grades of membership that the measured component parameters have in the respective fuzzy concepts.